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ABSTRACT

In a concerted effort to head off a situation in which almost half of the nation's young adults may conceivably be judged as having restricted literacy skills, the Educational Testing Service (ETS) has made a major commitment of human and financial resources to the area of adult literacy. ETS is directing a team of researchers and measurement specialists in a number of simultaneous projects that focus on the needs of adults with restricted literacy skills. Programs include (1) a computer-based learning assessment system that will focus on the needs of adults with midlevel literacy skills; (2) the Workplace Literacy Assessment--a project to profile the literacy skills needed in the workplace by jobseekers; and (3) establishment of literacy requirements for the 40 highest-volume, fastest-growing jobs in the United States between now and the year 2000. These projects will result in the development of learning progress scales in which teachers and learners can identify current positions and obtain guidance about what to do to move to a higher level. (RS)

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Adult literacy: helping Americans with midlevel skills prepare for the high-level demands of tomorrow

At first glance, the national statistics on adult literacy look impressive: 95 percent of America's young adults can read well enough to accomplish simple, routine literacy tasks. But the situation is not quite so rosy when you consider that only half of them perform as well as the average eleventh-grade student. Predicted economic, labor, and demographic changes indicate that by the year 2000, the literacy problem will be more severe, further dividing society along socioeconomic lines and threatening U.S. competitiveness in the world market.

In a concerted effort to head off a situation in which almost half of the nation's young adults may conceivably be judged as having restricted literacy skills, ETS has made a major commitment of human and financial resources to the area of adult literacy. Senior Research Scientist Irwin Kirsch is directing a team of researchers and measurement specialists in a number of simultaneous projects that focus on the needs of adults with restricted literacy skills.

"One consequence of our technologically advancing society is that literacy has become a sort of currency for granting rewards and giving people opportunities for personal advancement," Kirsch says. "And, like any currency, literacy has been subject to inflationary pressures. It's not so much that Americans are becoming less literate, but that we keep raising the literacy standards we expect them to achieve."

Indeed, the standards used to define literacy have changed dramatically over the years. During World War I, people were considered literate if they could read as well as fourth-graders. In the 1960s, literacy was redefined as the ability to read at the eighth-grade level, but by the 1970s, educators were insisting that a twelfth-grade reading ability would be necessary to function as a contributing member of society.

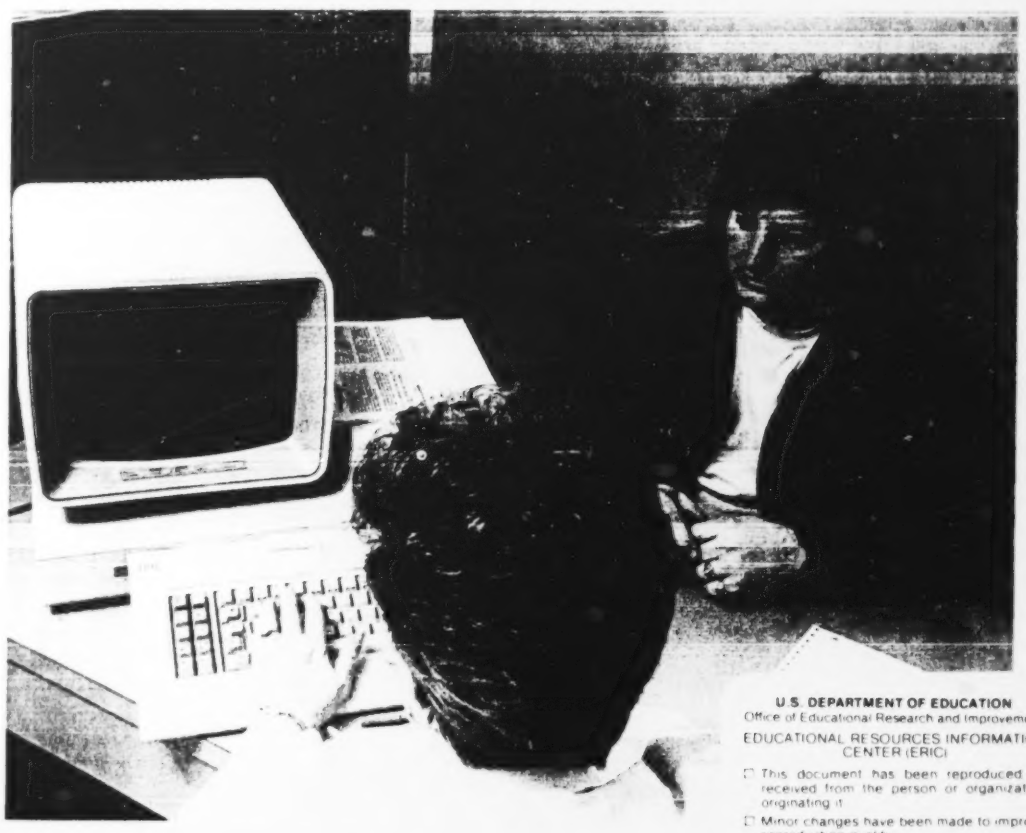
Today, as America continues to move from a manufacturing and industrial base to an information/service economy, a growing percentage of jobs will require literacy skills usually associated with some form of postsecondary education. Although the U.S. Bureau of Labor Statistics estimates that there will continue to be large numbers of low-skill jobs in the areas of health, custodial, and construction services, individuals who hope to escape from the low wages and intermittent unemployment of these jobs will need higher literacy skills.

"However," Kirsch points out, "it's been estimated that 75 percent of the work force for the year 2000 is already working. Not only do we need to address educational issues as they will affect tomorrow's workplace, but we must also focus on issues of retraining and reeducation as they will affect the work force of today."

Kirsch is genuinely concerned for the society at large. "Unless we are better able to provide all segments of our society with increased literacy skills, the very nature of our society will change. Within 10 years, we will be a less literate society; there will be greater gaps between those who have the skills they need and those who don't. It is imperative that we find efficient and effective ways to teach literacy skills to more people, so that they, in turn, will have access to better jobs and be able to participate more fully in our society."

The first priority for Kirsch and his team is to develop, by the summer of 1992, an operational prototype of a computer-based learning and assessment system in adult literacy that will focus on the needs of adults with midlevel reading skills.

"In terms of content, the literacy programs that are currently available fall at the extreme ends of the spectrum," notes ETS Vice President C. Victor Bunderson. "At one end, you have a very pragmatic batch of programs designed to help the user accomplish something quite specific, such



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as filling out a job application or developing a resume. At the other end of the spectrum, you find programs that are structured in grade levels, almost like course work, with no real connection to the pragmatic reading tasks adults must process. In the long term, neither of these approaches will help ease the bulk of the literacy problem in this country."

In contrast to these programs, Bunderson says, the ETS approach involves detailed analyses of the cognitive processes required to perform everyday tasks, then linking those tasks to points on a scale that represents the different levels of literacy.

Levels of literacy

The initial step toward understanding the levels of literacy was taken in 1985, when the ETS-administered National Assessment of Educational Progress (NAEP) conducted a national survey of the literacy skills of young adults. In reporting the results of that assessment to the nation, NAEP profiled skills on three scales representing very distinct and important aspects of literacy:

Prose literacy — the knowledge and skills needed to understand and use information from texts that include editorials, news stories, and poems;

Document literacy — the knowledge and skills required to locate and use information contained in job applications, forms, maps, bus schedules, tables, and indexes; and

Quantitative literacy— the knowledge and skills needed to apply arithmetic operations to information embedded in printed materials, such as balancing a checkbook, figuring out a tip, completing an order form, or determining the amount of interest from a loan advertisement.

A survey instrument consisting of a large pool of "simulation tasks," representing the diverse types of literacy activities that people encounter

at work, at home, and in their communities, was developed and administered to a nationally representative sample of people between the ages of 21 and 25.

Kirsch and his team spent a full year studying the NAEP literacy data. By conducting detailed reviews of the cognitive processes that underlie each task, the researchers were able to identify a number of variables that appeared to contribute to the kinds of errors demonstrated by survey participants.

"Basically, we've been trying to understand what contributes to the difficulty along each of the scales," Kirsch explains. "The difficulty of printed materials is not determined just by their structure but also by what the reader has to do with them. People with high-level literacy skills employ a variety of different reading strategies for different purposes. People who are reading at the fourth- to eleventh-grade levels have the basic literacy skills, but they lack the array of strategies necessary to deal with print at varying levels of difficulty. So we studied the kinds of errors people make when they attempt the tasks, and we're using that data to develop instructional routines."

DOL partnership

The ETS literacy team is also working with the U.S. Department of Labor on a project to profile the literacy skills of people participating in Job Training Partnership Act (JTPA) programs, as well as individuals being served by Employment Service (ES) and Unemployment Insurance (UI) programs. The project is called the Workplace Literacy Assessment and marks the first effort to create a profile of the on-the-job literacy skills of the three target populations.

The project will be carried out in two phases. During the first phase, the NAEP literacy survey instrument will be extended and administered to a random sample of 8,000 individuals from the three populations. The second phase will involve expanding the item pool to produce paper-and-pencil and, later, computerized tests to diagnose individual strengths and weaknesses.

ETS's adult-literacy efforts and the DOL project have formed a mutually beneficial relationship. The research already completed at ETS will make it possible to build appropriate assessment measures for the DOL populations, and the assessment of the DOL target groups will provide ETS with an opportunity to develop a battery of new simulation tasks with known properties and to calibrate the new tasks to the three existing literacy scales. In addition, the analyses of the errors typically made on the DOL simulation tasks will provide new and important information for the development of instructional materials for ETS's learning and assessment system.

The Department of Labor expects to use the results of the Workplace Literacy Assessment to guide the direction of future basic education, skills training, and other labor programs under the aegis of the Employment and Training Administration, and the measurement instruments produced for the second phase of the project will be used as diagnostic tools to help DOL's client populations.

Literacy on the job

In yet another project, literacy team members Judith Norback and Michael Rosenfeld are attempting to establish the literacy requirements for a select group of jobs typically held by people with midlevel reading skills.

Norback and Rosenfeld started by identifying the 40 highest-volume, fastest-growing jobs in the U.S. between now and the year 2000. In the initial study, they are studying the literacy demands of five entry-level positions (secretary, word processor, data-processing equipment repairer, food-preparation worker, and nurse's aide) and two higher-level jobs (cook and executive

secretary). They are currently conducting interviews with approximately 200 employees in industrial, government, and health-care settings and collecting samples of on-the-job reading materials representative of the three literacy scales (prose, document, and quantitative) typically used by these individuals.

Later in the study, a larger group of individuals working in the five positions will evaluate literacy tasks and materials that are representative of the demands of the five positions. A generic job description for each position, as well as a description of each job's literacy requirements, will result from the study.

"Actually, we're doing research to see if the job-analysis methodology ETS developed 15 years ago can be adapted to document the literacy materials and tasks required in today's jobs," explains Norback. "This is particularly exciting for me, because the work we're doing here at ETS will eventually evolve into learning experiences for people in the workplace and in high schools and vocational schools. If we can establish the different literacy levels required to perform successfully as a secretary and an executive secretary, for example, and then link them to the proficiency scales, we could incorporate that information into the computerized-adaptive learning and assessment system."

Individuals working as secretaries, Norback says, would be able to sit down and take a computerized test to find out if they have the skills required for the next logical career step in their field. If they found they were weak in certain areas, the system would offer them instructional units designed to develop those particular skills.

"Ultimately, we hope that when people look at these proficiency scales and recognize the real-life tasks from their own work, they will be motivated by their relevance. Teachers or supervisors will be able to identify the appropriate level of literacy required to complete such tasks," says Bunderson. "Employers or training agencies could then use this information to organize their job-training curriculum or retraining efforts to address very specific weaknesses by identifiable tasks. Based on the individual's performance on the assessment, the employer would know precisely where to have that individual begin the training program. This would enable employers to provide training more on target than ever before."

"The traditional, piecemeal approaches to adult literacy just haven't panned out," Kirsch adds. "We need a system that will teach people the full range of literacy skills that will be transportable from one environment to another. There will be serious consequences for our society if something isn't done."

Bunderson agrees that the adult literacy project at ETS will result in new types of products and services that will help make a significant impact on a major social problem. "Beyond this," he adds, "the project is developing new concepts, procedures, and capabilities for ETS to use in a variety of programs. Measurement scales like the NAEP literacy scales can be a starting point for developing learning progress scales. Learners and teachers can not only identify current positions, but can be provided with guidance about what to do to move to a higher level.

"In contrast to aptitude testing," he adds, "the new scales do not assume that capability is a fixed quality, not easily changed. The new measurement models assume that what is measured is changeable through instruction, practice, and feedback. The new family of Learning Progress Systems can make learning as effective and enjoyable as possible."

For more information, contact the Editor, ETS Developments, *16-D, ETS, Rosedale Road, Princeton, NJ 08541-0001.*